

REMARKS

The present amendment is in response to the Office Action dated November 3, 2006. Claims 1-32 and 39-44 are now present in this case. Claims 1, 5, and 39 are amended.

Claims 1-5, 15, 16, 17, 18, 28, 29, 30, 31, 32, and 39-44 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2005/0038619 A1 to Degani. Further, claims 6-14, and 19-27 stand rejected under 35 U.S.C. § 103(a) as unpatentable by Degani. The applicants respectfully traverse these rejections and request reconsideration.

Claims 1 was previously amended to clearly recite the hierarchical nature of the image processing. That is, the method of claim 1 determines whether a portion of the tissue volume exhibits an imaging plateau behavior "only in the event that the portion of a tissue volume fails to exhibit the imaging signal washout behavior" (emphasis added). Furthermore, claim 1 recites the automatic determination of whether a portion of the tissue volume exhibits an imaging signal persistent enhancement behavior "only in the event that the portion of the tissue volume fails to exhibit the imaging signal washout behavior and fails to exhibit the imaging signal plateau behavior" (emphasis added). The Office Action asserts, at page 2, that Figure 9 of Degani illustrates such hierarchical procedure. This is incorrect. Figure 9 of Degani does illustrate a process by which the signal characteristics are categorized based on a change of signal intensity levels at two different time periods designated as time (t2) and time (t1) as shown in steps 115-119 of Figure 9 in Degani. However, nothing in Degani teaches or even suggests that the process of step 117 is only performed if a negative result is obtained in step 115. Similarly, nothing in Degani teaches or suggests that the process in step 119 is performed only in the event of a negative result for step 115 and step 117.

Furthermore, the so-called hierarchy in Figure 9 of Degani is not even in the same sequence recited in claim 1. That is, step 115 in Figure 9 of Degani illustrates a continued enhancement, illustrated in Figure 13 of Degani. Step 117 in Figure 9 corresponds to plateau behavior, illustrated in Figure 14 of Degani. Step 119, illustrated

in Figure 15 of Degani corresponds to washout behavior. Thus, the sequence illustrated in Figure 19 of Degani is the exact reverse of the sequence recited in claim 1.

Finally, Degani clearly describes a process that results in the display of all three colors. In paragraph 71 of Degani, the optimal time points t1 and t2 are selected such that all three colors (i.e., red, green, and blue) each occupy about one third of the distribution in a calibration map. Thus, Degani clearly indicates the need for the selection of times that result in the optimal display of all three colors. This teaches directly away from a hierarchical process, such as that recited in claim 1. Accordingly, claim 1 is clearly allowable over Degani. Claims 2-4 are also allowable in view of the fact that they depend from claim 1, and further in view of the recitation in each of those claims.

Claim 5 is a method claim that recites *inter alia* "determining whether a candidate voxel set exhibits an imaging signal washout behavior." Claim 5 further recites determining whether a voxel candidate set exhibits an imaging signal plateau behavior "only in the event that the candidate voxel set fails to exhibit an imaging signal washout behavior." Finally, claim 5 recites determining whether a candidate voxel set exhibits an imaging signal persistent enhancement behavior "only in the event that the candidate voxel set fails to exhibit an imaging signal washout behavior or an imaging signal plateau behavior." As discussed above with respect to claim 1, Degani teaches directly away from any hierarchical procedure. When considering Degani in its entirety, it is clear that all three processes must be performed in order to properly apply a calibration map to provide the resultant three color display. This teaches directly away from the process recited in claim 5. Accordingly, claim 5 is clearly allowable over Degani. Claims 6-29 are also allowable in view of the fact that they depend from claim 5, and further in view of the recitation in each of those claims.

Claim 30 is a method claim that recites *inter alia* "performing a sequential analysis to determine whether the candidate voxel set exhibits an imaging signal washout behavior, an imaging signal plateau behavior, or an imaging signal persistent enhancement behavior wherein the analysis to determine the imaging signal plateau behavior is performed only if the candidate voxel set does not exhibit any imaging signal washout behavior, and the analysis to determine imaging signal persistent

enhancement behavior is performed only if the candidate voxel set does not exhibit any imaging signal washout behavior or any imaging signal plateau behavior” (emphasis added). As discussed above with respect to claim 1, nothing in Degani suggests such a sequential analysis where step 2 (i.e., analysis to determine imaging signal plateau behavior) is performed only if step 1 does not exhibit any results (i.e., no exhibit of imaging signal washout behavior) and wherein step 3 (i.e., analysis to determine imaging signal persistent enhancement behavior) is performed only if steps 1 and 2 both provide negative results. As noted above, Degani requires the process of all three behavior types so that the resultant image illustrates approximately one third of each behavior type (that is, the time points are chosen so that the calibration map results in approximately one third of the tissues of interest correspond to each of the three colors displayed in the final result. This teaches directly away from the method recited in claim 30. Accordingly, claim 30 is clearly allowable over Degani et al.

Claim 31 is a method claim that recites *inter alia* “determining whether the candidate voxel set exhibits an imaging signal washout behavior” as well as “determining whether the candidate voxel set exhibits an imaging signal plateau behavior in the event that the candidate voxel set fails to exhibit the imaging signal washout behavior.” Finally, claim 31 recites “identifying the candidate voxel set as a likely malignancy corresponding to a plateau behavior in the event that the candidate voxel set fails to exhibit the imaging signal washout behavior and exhibits the imaging signal plateau behavior. As discussed above with respect to claim 1, Degani teaches a system in which all candidate voxel sets are analyzed and categorized into one of three categories. For example, Figure 9 in Degani categorizes all candidate voxel sets with voxels showing persistent enhancement behavior (corresponding to Figure 13 in Degani) being colored red, voxels showing plateau behavior (corresponding to Figure 14 in Degani) being colored green and voxels showing washout behavior (corresponding to Figure 15 in Degani) being colored blue.

It is noted that the final step of the three steps required in Degani (i.e., identifying candidate voxel sets exhibiting washout behavior) corresponds to the first process recited in claim 31. Claim 31 further states that candidate voxel sets are analyzed to determine whether they exhibit imaging signal plateau behavior “in the

event that the candidate voxel set fails to exhibit the imaging signal washout behavior.” Given the sequence illustrated in Degani, the candidate voxels are analyzed for persistent enhancement behavior, followed by plateau behavior, followed by signal washout behavior. Any voxels that do not correspond to signal washout behavior in step 119 in Figure 9 of Degani are colored black, but will never correspond to signal plateau behavior because those candidate voxels were previously identified in step 117. Thus, Degani clearly teaches sequential operation significantly different from that recited in claim 31. Accordingly, claim 31 is clearly allowable over Degani. Claim 32 is also allowable in view of the fact that it depends from claim 31, and further in view of the recitation in that claim.

Claim 39 is a computer readable medium claim in which program instructions cause the computer to “determine whether a candidate voxel set that forms a portion of a medical imaging data set corresponding to a tissue volume exhibits an imaging signal washout behavior.” The computer instructions also cause a computer to “determine whether the candidate voxel set exhibits an imaging signal plateau behavior only in the event that the candidate voxel set fails to exhibit imaging signal washout behavior.” Claim 39 also recites computer instructions that cause the computer to “determine whether the candidate voxel set exhibits an imaging signal persistent enhancement behavior only in the event that the candidate voxel set fails to exhibit either imaging signal washout behavior or imaging signal plateau behavior.” As discussed above, Degani does not teach such conditional processes. Degani requires the processing of all voxels and categorization into one of the three categories (i.e., persistent enhancement, plateau behavior, or washout behavior, as illustrated in steps 115-119 of Figure 9 in Degani that illustrated in Figures 13-15 of Degani. Degani clearly requires the processing and classification into one of the three categories and adjusts the time points to provide a final image having approximately one third of each of the three colors (i.e., red, green, and blue). This teaches directly away from the conditional processing recited in claim 39 where the computer determines whether voxel sets exhibit plateau behavior only in the event that the candidate voxel set fails to exhibit the signal washout behavior. Furthermore, the computer readable medium recited in claim 39 causes the computer to determine whether the voxel set exhibits imaging signal

persistent enhancement behavior only in the event that the candidate voxel set fails to exhibit either washout behavior or plateau behavior. These conditional steps are clearly patentable over Degani. Accordingly, claim 39 is allowable over Degani. Claims 40-44 are also allowable in view of the fact that they depend from claim 39, and further in view of the recitation in each of those claims.

In view of the above amendments and remarks, reconsideration of the subject application and its allowance are kindly requested. The applicant has made a good faith effort to place all claims in condition for allowance. If questions remain regarding the present application, the Examiner is invited to contact the undersigned at (206) 628-7640.

Respectfully submitted,
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